Having described the invention, what is claimed as new and to be secured by Letters Patent is:

1. An apparatus for accommodating optical fiber, comprising:

a body comprising an inwardly facing surface adapted for receiving a plurality of loops of a length of optical fiber, said body including at least a portion wherein said inwardly facing surface is continuous between two adjacent loops.

2. The apparatus of claim 1 wherein said surface is adapted such that at least the majority of all of the loops to be received by said surface will be received so as to be substantially coaxial.

3. The apparatus of claim 1 wherein said surface comprises a helical groove for receiving said loops of optical fiber.

4. The apparatus of claim 1 comprising a second body that can be mated with the body, said second body having an outer surface that faces said inwardly facing surface of said body when said bodies are mated.

5. The apparatus of claim 1 wherein said second body can be removeably and replaceably mated with said body.

6. The apparatus of claim 1 wherein said second body comprises a split ring that can be compressed for facilitating mating of said second body with said body.

7. The apparatus of claim 1 wherein said body comprises at least one of aluminum and copper.

8. The apparatus of claim 1 wherein said body generally comprises a ring shape.

9. The apparatus of claim 1 wherein said body comprises means for increasing heat transfer to or from the body.

10. The apparatus of claim 1 comprising at least one passageway for a section of said length of fiber to pass from said plurality of loops.

11. The apparatus of claim 10 wherein said passageway is arranged such that said section of said length of fiber from said loop enters said passageway substantially along a tangent to one of said plurality of loops.

12. The apparatus of claim 1 comprising said length of optical fiber.

13. An optical apparatus, comprising:

a length of optical fiber comprising a rare earth, said length of optical fiber comprising a plurality of loops;

a body comprising an inwardly facing surface receiving said plurality of loops of said length of optical fiber.

14. The optical fiber of claim 13 wherein all loops received by said inwardly facing surface are substantially coaxial.

15. The optical apparatus of claim 13 wherein said inwardly facing surface comprises a helical groove receiving said loops of optical fiber.

16. The optical apparatus of claim 13 comprising a second body that can be mated with said body, said second body having an outer surface that faces said inwardly facing surface of said body when said bodies are mated.

17. The optical apparatus of claim 13 wherein said second body can be removeably and replaceably mated with said body.

18. The optical apparatus of claim 13 wherein said second body comprises a split ring that can be compressed for facilitating mating of said second body with said body.

19. The optical apparatus of claim 13 wherein said second body, when mated with said body, does not substantially compress said plurality of loops.

20. The optical apparatus of claim 13 wherein said body comprises at least one of aluminum and copper.

21. The optical apparatus of claim 13 comprising means for increasing the transfer of heat to or from said body.

22. The optical apparatus of claim 13 comprising at least one passageway for a section of said fiber to pass from said plurality of loops.

23. The optical apparatus of claim 22 wherein said passageway is arranged such that said section of fiber from said loop enters said passageway substantially along a tangent to one of said plurality of loops.

24. The optical apparatus of claim 13 wherein responsive to receiving light of a first wavelength said rare earth can provide light of a second wavelength that is different than said first wavelength and wherein said fiber is normally multimode at said second wavelength.

25. The optical apparatus of claim 24 wherein when said loops are shaped such that higher order modes are attenuated substantially more than a fundamental mode of said fiber.

26. The optical apparatus of claim 13 comprising a light source optically coupled to said optical fiber for providing the light of the first wavelength.

27. The optical apparatus of claim 26 comprising a second light source optically coupled to said optical fiber for providing light of the second wavelength.

28. The optical apparatus of claim 27 comprising at least one fiber grating for reflecting light of said second wavelength.

29. The optical apparatus of claim 26 comprising at least one fiber grating for reflecting light of said second wavelength.

30. Optical apparatus, comprising:

first and second bodies adapted for being mated together to define a plurality of passages for housing a plurality of loops of a length of optical fiber.

31. The apparatus of claim 30 wherein said plurality of loops have substantially the same radius of curvature.

32. The apparatus of claim 30 wherein said plurality of passages comprises a helical passage.

33. The apparatus of claim 30 wherein each of said plurality of passages comprises a closed cross section.

34. A method of accommodating a loop of optical fiber, comprising the steps of:

providing a body;

providing a length of optical fiber, the fiber comprising a rare earth; and

receiving a plurality of loops of said fiber with a surface of the body, said plurality further being received such that said body can physically expand without subjecting said plurality of loops to an increase in tension.

35. The method of claim 34 wherein said body comprises one of aluminum and copper.

36. The method of claim 35 wherein said body comprises an inwardly facing surface for receiving at least part of an outer face of each of said plurality of loops.

37. The method of claim 35 wherein said inwardly facing surface comprises a helical groove for receiving the plurality of loops.

38. A method of disposing optical fiber with an optical apparatus for accommodating the optical fiber, comprising:

providing an optical fiber;

providing first and second bodies mated together, the mated bodies defining at least one passage bounded at least in part by the first and second bodies;

disposing a length of the optical fiber into at least one loop within the at least one passage while providing relative movement between the first and second bodies.

39. The method of claim 38 wherein disposing the length of optical fiber includes passing the length of fiber through an outside region surrounded at least in part by one of the bodies.

40. The method of claim wherein the first body, when mated with the second body, surrounds the second body and wherein moving one of the bodies includes rotating the first body.

41. The method of claim 40 wherein the first and second bodies each comprise a ring shape.